



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|-------------------|
| 10/633,026 | 08/01/2003 | Jeffrey B. Lovett | 00171CIP | 4736 |
| 26285 | 7590 | 01/13/2006 | | |
| KIRKPATRICK & LOCKHART NICHOLSON GRAHAM LLP 535 SMITHFIELD STREET PITTSBURGH, PA 15222 | | | | EXAMINER |
| | | | | THOMPSON, CAMIE S |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1774 | |

DATE MAILED: 01/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/633,026 | LOVETT ET AL. | |
| | Examiner | Art Unit | |
| | Camie S. Thompson | 1774 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on Amendment filed October 26, 2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-33,66-76 and 117-172 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 17,27,33,66-76 and 117-156 is/are allowed.
- 6) Claim(s) 1-16,18-26,28-32,157-159,161,162,164,165,167 and 168 is/are rejected.
- 7) Claim(s) 160,163,166,169 and 172 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Applicant's amendment and accompanying remarks filed October 26, 2005 have been acknowledged.
2. Examiner acknowledges amended claims 12, 17, 27, 28, 33, 117-118, 125-126, 134-135, and 145-146.
3. Examiner acknowledges newly added claims 157-172.
4. The rejection of claims 1-5, 9-16, 18-21, 24-26 and 28-32 under 35 U.S.C. 102(b) as being anticipated by JP 60-21559 is withdrawn due to applicant's argument.
5. The rejection of claims 1, 6-8, 18 and 22-23 under 35 U.S.C. 103(a) as being unpatentable over JP 60-21559 is withdrawn due to applicant's argument.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
7. Claims 1-16, 18-26, 28-32, 157-159, 161-162, 164-165 and 167-168 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 60-21559 in view of Henning, U.S. Patent Number 5,240,772.

The Japanese reference discloses fibers for reinforcing cement mortar or concrete wherein the fibers that form yarns as per instant claims 1, 18 and 28 (see reference claim 1). Additionally, the reference discloses that the fibers are twisted into a non-interconnected bundle at 50-700 turns per meter (see reference claim 1). Also, the reference discloses that the reinforcing fibers can be polyolefin fibers such as polyethylene fibers and polypropylene fibers (see reference claim 2 and page 8, last paragraph). Table 2 of the Japanese reference discloses that the fibers can be 44-59 mm in length. The Japanese reference does not provide for the high denier filaments. Henning teaches high denier monofilaments used in reinforcement (see column 1, lines 10-11). Additionally, Henning teaches that the denier of the monofilaments is above 1000 (see column 4, lines 16-20). Henning teaches that high denier monofilaments produces high strength monofilaments. Therefore, it would have been obvious to one of ordinary skill in the art to use the high denier monofilaments of the Henning reference to produce high strength fiber bundles for the reinforcement material. Also, the Japanese reference discloses that the reinforcing fibers can be polyolefin fibers such as polyethylene fibers and polypropylene fibers (see reference claim 2 and page 8, last paragraph). The Japanese reference does not specifically disclose that the strands of monofilaments consist of a copolymer of polyethylene and polypropylene. The Japanese reference does disclose the use of polyolefin fibers such as polyethylene and polypropylene and any synthetic fibers that meet the physical properties required to be mixed into a cementitious matrix. Therefore, it would have been obvious to one of ordinary skill in the art to have strands of monofilaments consisting of a copolymer of polyethylene and polypropylene since the copolymer meet the physical requirements for blending into a cementitious mass and are encompassed by the generic polyolefin fibers. The

Art Unit: 1774

amount of polyethylene and polypropylene in the copolymer affect the strength of the fibers. However, this is an optimizable feature. Discovery of optimum values of a result effective variable involves only routine skill in the art *in re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Therefore, it would have been obvious to have the copolymer comprise 75-80 percent by weight polypropylene and about 20-25 percent by weight polyethylene in order to have a polyolefinic strands with great strength for reinforcement.

8. Claims 160, 163, 166, 169 and 172 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not provide for the recited fiber reinforcement for cementitious material, further including the cementitious material is asphalt and the strands are twisted to form a non-interconnected bundle in the absence of a wetting agent. Also, the prior art does not provide for the recited fiber reinforcement for a reinforced cementitious material, further comprising a plurality of strands of monofilaments that form a first fiber component and a second fiber component that is discrete from the first fiber component and is fibrillated and formed of a homopolymer material.

9. Claims 17, 27, 33, 66-76 and 117-156 are allowed. The prior art does not provide for a reinforcement for cementitious material, comprising: a plurality of polyolefin monofilaments, the plurality of monofilaments being in a twisted configuration, the degree of twist being greater than about 0.9 turns/inch (about 0.36 turns/cm), wherein the cementitious material is asphalt. The prior art does not provide for a reinforced cementitious material, comprising: a cementitious mass; and

Art Unit: 1774

a fiber component dispersed throughout the mass, the fiber component being a plurality of polyolefinic strands of monofilaments of about 350 to about 6000 denier per filament twisted to form a fiber bundle, the degree of twist being greater than about 0.9 turns/inch (about 0.36 turns/cm), wherein the cementitious mass is asphalt.

The prior art does not provide for a reinforcement material for a cementitious material formed by twisting a plurality of polyolefinic strands of monofilaments into a fiber bundle for mixing into a cementitious mass, the degree of twist being greater than about 0.9 turns/inch (about 0.36 turns/cm), wherein the cementitious mass is asphalt.

The prior art does not provide for a reinforced cementitious material, comprising:

a synthetic fiber blend distributed through a matrix of the cementitious material, the synthetic fiber blend, including:

a first fiber component formed of a homopolymer polypropylene fiber; and
a second fiber component being discrete from the first fiber component and being a copolymer formed of a polypropylene and a high density polyethylene, the second fiber component being a plurality of monofilaments twisted to form a non-interconnected bundle, the degree of twist being greater than about 0.9 turns/inch (about 0.36 turns/cm).

The prior art does not provide for a reinforced cementitious material, comprising;

a synthetic fiber blend distributed through a matrix of the cementitious material, the synthetic fiber blend, including:

a first fiber component formed of a homopolymer polypropylene fiber; and
a second fiber component being discrete from the first fiber component and being a copolymer formed of a polypropylene and a high density polyethylene, the second fiber

Art Unit: 1774

component being a plurality of monofilaments of about 350 to about 6000 denier per filament twisted to form a fiber bundle in the absence of a wetting agent.

Response to Arguments

10. Applicant's arguments with respect to the instant claims have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena L Dye, can be reached at (571) 272-3186. The fax phone number for the Group is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


RENA DYE
SUPERVISORY PATENT EXAMINER
A-U-1774 19/04